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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TOSHIYA TANAKA,
AKIKO SAITO, and HITOSHI KAWANO

Appeal 2015-005925
Application 12/867,134
Technology Center 2800

Before MARK NAGUMO, GEORGE C. BEST, and JEFFREY R. SNAY, *Administrative Patent Judges*.

BEST, Administrative Patent Judge.

DECISION ON APPEAL

The Examiner finally rejected claims 1 – 4 of Application 12/867,134 under 35 U.S.C. § 103(a) as obvious. Final Act. (July 9, 2014). Appellants[1] seek reversal of these rejections pursuant to 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, we AFFIRM. We designate our affirmance of the rejection of claim 3 as constituting a NEW GROUND OF REJECTION under 37 C.F.R. § 41.50(b).

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[1] Toshiba Lighting & Technology Corp. and Kabushiki Kaisha Toshiba are identified as the real parties in interest. Br. 2.

BACKGROUND

The '134 Application describes a light-emitting module in which light-emitting elements such as LEDs are arranged. Spec. ¶ 1. In particular, the Specification describes the position of the light-emitting elements relative to the electronic circuitry used to power and control the light-emitting elements. *Id.* ¶ 6.

Claim 1—the '134 Application's only independent claim on appeal—is reproduced below from the Claims Appendix of the Brief. Disputed claim limitations are italicized.

> 1. A light-emitting module comprising:
>
> a substrate having a front surface side constituted as a component mounting surface and a rear surface side constituted as a heat dissipating surface flat in shape;
>
> *a plurality of light-emitting elements mounted in a central area of a component mounting surface of the substrate* in such that the plurality of light-emitting elements extend away from the component mounting surface and emit light at least in an upper surface direction and in a direction along the component mounting surface;
>
> a lighting circuit component which is used for electrically mounting each of the plurality of light-emitting elements, wherein the lighting circuit component is electrically connected to the light emitting elements by a wiring pattern arranged on the substrate, and includes at least an AC to DC converter providing constant current to the plurality of light-emitting elements, the AC to DC converter including a plurality of electronic components, and *wherein the lighting circuit component is mounted on a peripheral area surrounding the central area of the component mounting surface of the substrate,* wherein the peripheral area has an annular shape and at least a portion of an outer edge of the peripheral area is shaped like a part of a circle, the component mounting surface consisting of the central area and the peripheral area; and

> a connector for connecting with a power supply, which is arranged on the peripheral area of the component mounting surface of the substrate, and which is electrically connected to the lighting circuit component.

Br. 14 (Claims App.).

REJECTION

On appeal, the Examiner maintains the following rejection:

1. Claims 1 – 4 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Ray[2] and Szypszak.[3] Final Act. 2.

DISCUSSION

Appellants argue for reversal of the rejection of claims 1 – 4 on the basis of limitations present in claim 1. Br. 6 – 10. Appellants also present additional arguments for the separate patentability of claim 3. Claims 2 and 4 are alleged to be patentable solely on the basis of their dependence from claim 1.

Claims 1, 2, and 4. Appellants argue that the rejection of independent claim 1 should be reversed for two reasons: (1) the Examiner improperly relied upon an "obvious to try rationale" in rejecting claim 1, Br. 6 – 8, and (2) the claimed arrangement of the electronic circuitry and the light-emitting elements offers unexpected results, *id.* at 8 – 9. For the reasons set forth below, we are not persuaded by either of these arguments.

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[2] US 4,211,955, issued July 8, 1980.

[3] US 2004/0070990 A1, published April 15, 2004.

First, Appellants argue that

> the Office appears to claim that the arrangement recited in claim 1 would have been obvious to try in view of Ray and Szypszak. Such is not the case. As set forth by the Federal Circuit, and "obvious to try" rationale is only permissible in supporting an obviousness rejection or the number of possible options for solving a problem are known and finite and there is no evidence of unexpected results. The present circumstances do not support a conclusion of obviousness based on such a rationale.

Id. at 7 (internal citations omitted).

Appellants first argue that the Examiner has not identified or established a problem for which the alleged finite number of relationships are possible solutions. *Id.* We are not persuaded by this argument.

In rejecting claim 1, the Examiner found that Ray describes each limitation of claim 1 except for the relative location of the lighting circuit component, the light-emitting elements, and the connector. Final Act. 3. The Examiner further found that Szypszak describes a light-emitting module comprising light-emitting elements mounted at a central portion of a component mounting surface of a substrate and a lighting circuit—including a connector for connecting a power supply—arranged on the peripheral area of the component mounting surface of substrate. *Id.* The Examiner also found that Szypszak explains that locating the lighting circuit on the periphery of the substrate allows positioning of various control structures so that they are easily accessed by a user. Answer 3 (citing Szypszak ¶ 65). Thus, the Examiner has established that the relative location of the various components in the light-emitting module affect usability of the module. This is the problem confronting a person having ordinary skill in the art at the time of the invention.

Appellants next argue that, assuming *arguendo* that the Examiner has correctly identified a problem needing to be solved that there are an infinite number of positional relationships between a light-emitting elements and a light circuit component. Br. 7 – 8.

We are not persuaded by this argument. As the Examiner correctly notes, claim 1 does not establish absolute positional relationships between the various components of the light-emitting module. Rather it only specifies relative positional relationships. *See* Answer 4 – 5.

Second, Appellants assert that the particular arrangement recited in claim 1 provides unexpected results. Br. 8 – 9.

The existence of unexpected results is a question of fact. *In re Mayne*, 104 F.3d 1339, 1343 (Fed. Cir. 1997). A showing of unexpected results must be based upon evidence rather than argument or speculation. *Id.* at 1343–44. To establish the existence of unexpected results, Appellant must establish (1) that there actually is a difference between the results obtained through the claimed invention and those of the closest prior art and (2) that the difference actually obtained would not have been expected by a person of ordinary skill in the art at the time of the invention. *In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973) (citing *In re Klosak*, 455 F.2d 1077 (CCPA 1972); *In re D'Ancicco*, 439 F.2d 1244 (CCPA 1971)).

In this case, Appellants have not provided us with any evidence of unexpected results. Their Brief cites no experimental data. Rather, it sets forth unsupported attorney argument that the claimed arrangement improved the heat dissipation properties of the lighting elements and the circuit components. Br. 8. Such unsupported attorney argument cannot take the place of evidence.

Moreover, the '134 Application's Specification does not contain any comparison of the properties of the claimed arrangement relative to the prior art, nor does it contain any evidence that, at the time of the invention, a person having ordinary skill in the art would have considered the alleged heat dissipation properties of the claimed arrangement to have been unexpected. Appellants, therefore, have failed to establish the existence of unexpected results sufficient to rebut the prima facie case of obviousness.

In view of the foregoing, we affirm the rejection of claims 1, 2, and 4.

Claim 3. Claim 3 is reproduced below from the Claims Appendix of the Brief:

> 3. The light-emitting module according to claim 1, wherein
>
> when it is determined that a minimum distance between light-emitting portions of the plurality of the light-emitting elements arranged is c,
>
> a width of the light-emitting portion on a line of the minimum distance c is a, and
>
> a height from the mounting surface of the substrate to an upper surface of the light-emitting portion is b,
>
> the light-emitting elements are arranged so as to satisfy a dimensional relationship of b<c<4a.

Br. 15 (paragraphing and indentation added).

Appellants argue that claim 3 is "allowable for at least the same reasons as claim 1. Additionally, nowhere does either Ray or Szypszak, taken either separately or in combination, teach or suggest a dimensional relationship of lighting-emitting elements of b < c < 4a . . . ." Br. 10.

In rejecting claim 3, the Examiner stated that Ray does not expressly disclose the dimensional relationship set forth in the claim and did not address whether or not Szypszak discloses such a dimensional relationship. The Examiner found that

> [i]t would have been an obvious matter of design choice to have utilized the relationship of size and distance between the LEDs as described above . . . , since such a modification would have involved a mere change in the size of a component. . . . Furthermore, one of ordinary skill in the art would have found it obvious to have increased the distance between the LEDs and to have placed the LEDs at least a minimum distance apart in order to facilitate adequate heat dissipation and avoid overheating of the electrical components.

Final Act. 5.

Appellants argue that these findings are erroneous and that the conclusion that the subject matter of claim 3 would have been obvious should be reversed because the Examiner did not justify why it would have been obvious to select the particular claimed relationship. Br. 11.

We are not persuaded by this argument. Szypszak emphasizes the importance of light-emitting elements of an LED light source to obtain an even distribution of the light emitted by the LED light source. In discussing the prior art, Szypszak teaches that the arrangement and the alignment of the individual LED assemblies in the light source is critical:

> Pointing a group of individual LED assemblies in the general direction of a target results in unpredictable, but always uneven, distribution of the light on the target. Beams from two or more individual LED assemblies may substantially concentrate on a portion of the target to form a bright spot, while, at the same time, making other areas of the target darker. Only a very effective diffuser will diffuse unevenly distributed light emitted by LED assemblies to minimize the illumination of bright spots and increase the illumination of dark spots. Such diffusers introduce a substantial loss of light intensity, which loss of light intensity makes an illuminator energy inefficient. *Therefore, for any application which requires efficient and even illumination of a specific area, more than a simple grouping of individual LED assemblies behind a diffuser is required.*

Szypszak ¶ 4.

Although Szypszak focuses on the importance of aligning the individual LEDs in an LED assembly, Szypszak teaches that the initial arrangement of the LED assemblies in an LED light source as the first step in building the LED light source:

> [T]he construction of an LED illuminator according to the present invention begins with an assessment of illumination requirements. Specifically, the illumination requirements in terms of light color, light pattern, and light intensity are determined. Second, the needed electrical capabilities concerning power, switching, and programmability for the illumination requirements are assessed. Third, the shape and light distribution requirements for either the cover or the outer epoxy layer are defined. With these basic requirements defined, the process of building the LED illuminator is *initiated* by selecting the LED assemblies to be used *and determining the arrangement of the individual LED assemblies on a printed circuit board.* Once the individual LED assemblies and the electronic componentry are mounted to the printed circuit board, the LED assemblies are individually aligned or attuned to obtain the needed light pattern.

Id. ¶ 82 (emphasis).

Thus, a person of ordinary skill in the art would have known that the initial light distribution of an LED light source can be optimized by arranging the LED assemblies—i.e. the light-emitting elements — in an appropriate manner.

Szypszak also teaches the importance of properly controlling the heat emitted by an array of LED assemblies because increasing heat lowers the efficiency of light output of the assemblies and can cause component failure. *Id.* ¶¶ 84 – 88.

In view of the foregoing, a person of ordinary skill in the art at the time of the invention would have arrived at the spatial relationship recited in claim 3 as a matter of design choice. This design choice would have been

guided by the need to optimize the trade-off between LED energy efficiency and obtaining a uniform light distribution pattern. Appellants have not directed our attention to substantial evidence indicating secondary considerations such as unexpected results, commercial success, etc., sufficient to overcome this prima facie case of obviousness. We, therefore, affirm the rejection of claim 3.

Because we have relied on facts and reasoning not raised by the Examiner, we designate our affirmance as including new grounds of rejection. *In re Leithem*, 661 F.3d 1316, 1319 (Fed. Cir. 2011) ("Mere reliance on the same statutory basis and the same prior art references, alone, is insufficient to avoid making a new ground of rejection when the Board relies on new facts and rationales not previously raised to the applicant by the examiner.").

CONCLUSION

For the reasons set forth above, we affirm the rejection of claims 1 – 4 of the '134 Application as unpatentable over the combination of Ray and Szypszak.

In addition to affirming the Examiner's rejection(s) of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b), which provides that "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

Section 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of

the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
>
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

Should the appellant elect to prosecute further before the Examiner pursuant to 37 CFR § 41.50(b)(1), to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection(s), the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellant elects prosecution before the examiner and this does not result in allowance of the application, abandonment, or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART